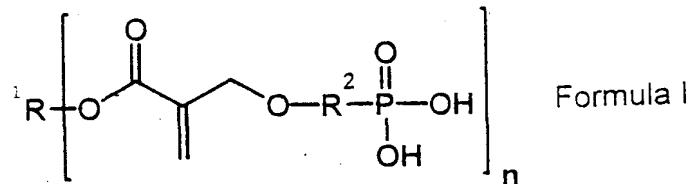


Patent claims

1. Acrylic ester phosphonic acid of general formula (I), stereoisomers thereof and mixtures of these,

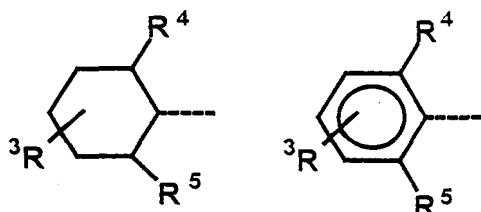


in which

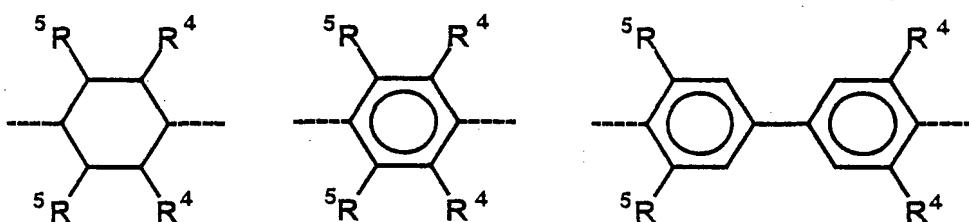
n is 1 or 2,

on the condition that

for n = 1 R¹ has the meaning



and for n = 2 R¹ has the meaning



R² is a C₁ to C₁₂ alkylene radical, C₄-C₈ cycloalkylene radical or C₇ to C₁₅ alkylene phenylene radical;

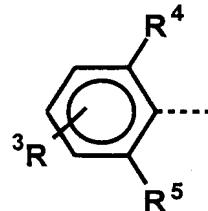
R³ is hydrogen, a C₁ to C₅ alkyl radical or a C₁ to C₅ O-alkyl radical; and

R^4 , R^5 independently of each other, each stand for a C_1 to C_5 alkyl radical or a C_1 to C_5 O-alkyl radical.

2. Acrylic ester phosphonic acid according to claim 1, **characterized in that** one or more of the variables of Formula (I), independently of each other, have the following meaning:

$n = 1$,

$R^1 =$



$R^2 =$ a C_1 to C_6 alkylene radical;

$R^3 =$ hydrogen, a C_1 to C_3 alkyl radical; and

R^4 , $R^5 =$ independently of each other, a C_1 to C_3 alkyl radical.

3. Acrylic ester phosphonic acid according to claim 1 or 2, **characterized in that** the radicals R^2 , R^3 , R^4 and/or R^5 are unsubstituted or substituted by one or more substituents selected from the group Cl, Br, CH_3O , OH, COOH, CN, =O, =S, =NR⁶ or $-NR^7-CO-C(=CH_2)CH_2-Y-R^8-PO(OH)_2$, wherein R^6 and R^7 , independently of each other, each stand for hydrogen, a straight-chained or branched C_1 to C_{10} alkyl or C_6 to C_{10} aryl radical and R^8 is a straight-chained or branched C_1 to C_{10} alkylene or C_6 to C_{14} arylene radical.

4. Composition, **characterized in that** it contains an acrylic ester phosphonic acid according to one of claims 1 to 3.

5. Composition according to claim 4, **characterized in that** it additionally contains a radically polymerizable monomer.
6. Composition according to claim 5, **characterized in that** it contains an acrylamide and/or a hydroxyalkyl acrylamide as a radically polymerizable monomer.
7. Composition according to claim 5 or 6, **characterized in that** it contains a monofunctional and/or a multifunctional radically polymerizable monomer.
8. Composition according to claim 7, **characterized in that** it contains as a monofunctional radically polymerizable monomer one or more hydrolysis-stable mono(meth)acrylates, mesityl methacrylate, one or more 2-(alkoxymethyl)acrylic acids, 2-(ethoxymethyl)acrylic acid, 2-(hydroxymethyl)acrylic acid, one or more N-mono- or N-disubstituted acrylamides, N-ethylacrylamide, N,N-dimethacrylamide, N-(2-hydroxyethyl)acrylamide, N-(2-hydroxyethyl)-N-methyl-acrylamide, one or more N-monosubstituted methacrylamides, N-ethylmethacrylamide, N-(2-hydroxyethyl)methacrylamide, N-vinylpyrrolidone, allyl ether or a mixture of two or more of these monomers.
9. Composition according to claim 7 or 8, **characterized in that** it contains as a multifunctional radically polymerizable monomer one or more urethanes from 2-(hydroxymethyl)acrylic acid and diisocyanates, 2,2,4-trimethylhexamethylene diisocyanate, isophorone diisocyanate, one or more crosslinking pyrrolidones, 1,6-bis(3-vinyl-2-pyrrolidonyl)-hexane, one or more bisacrylamides, methylene bisacrylamide, ethylene bisacrylamide, one or more bis(meth)acrylamides, N,N-diethyl-1,3-bis(acrylamido)-propane, 1,3-bis(methacrylamido)-propane, 1,4-bis(acrylamido)-butane,

1,4-bis(acryloyl)-piperazine or a mixture of two or more of these monomers.

10. Composition according to one of claims 4 to 9, **characterized in that** it additionally contains an initiator for radical polymerization.
11. Composition according to one of claims 4 to 10, **characterized in that** it additionally contains a filler.
12. Composition according to one of claims 4 to 10, **characterized in that** it additionally contains solvent.
13. Composition according to one of claims 4 to 12, **characterized in that** it additionally contains a (meth)acrylamidoalkyl dihydrogen phosphate.
14. Composition according to one of claims 4 to 13, **characterized in that** it contains
 - a) 0.5 to 70 wt.-% acrylic ester phosphonic acid according to claim 1 or 2;
 - b) 0.01 to 15 wt.-% initiator for radical polymerization;
 - c) 0 to 80 wt.-% radically polymerizable monomer;
 - d) 0 to 95 wt.-% solvent;
 - e) 0 to 50 wt.-%, (meth)acrylamidoalkyl dihydrogen phosphate,
and/or
 - f) 0 to 75 wt.-% filler.
15. Use of a composition according to one of claims 4 to 14 as dental material.
16. Use according to claim 15 as cement or adhesive.

17. Use of an acrylic ester phosphonic acid according to one of claims 1 to 3 for the preparation of a dental material.